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III. *An Account of an Experiment, touching the Propagation of Sound, passing from the Sonorous Body into the common Air, in one Direction only. By Mr. Fr. Hauksbee, F. R.S.*

SINCE by the former Experiment actual Sound could not be transmitted thro' a Space void of Air; I was inclin'd to try whether that Sound, which should be propagated in a Receiver, having a Communication with the open Air at one small Apperture only, but otherwise intirely surrounded by a *Vacuum*; Whether I say, that Sound would be increas'd, or continu'd Sounding longer, at each Stroke that should be given the Bell, than it would do, were not its Body encompass'd by such a *Medium*. In order thereto, the Bell was included as in the pre-mention'd Experiment, only, to the upper part of its Receiver, was screw'd a Box with Collars of Leather; and on the Top of the outward Receiver, was laid a Brass-Plate with a wet Leather between: In the middle of which Plate, was likewise screw'd another Brass Box with Collars, as before. These Receivers when plac'd on the Pump, had their Boxes standing directly one over the other. Thro' both of them in that Position, I past a hollow Brass Tube, which exactly fitted their Perforations: thus the inward Receiver had a Communication with the outward Air, and the outward Receiver thereby was secur'd from the Ingress of the Circumambient *Medium*. Now when the Air contain'd between the Receivers

ceivers was pretty well exhausted, and the Bell struck, the Sound was sensibly very vigorous, and (I think) very nearly as great as before any Air was taken away at all; yet if ones Finger was apply'd to the Apperture of the hollow Brass Tube, the Sound would be so much diminish'd, as but just to be distinguished. By this we see, that since the Sound in that state cannot be transmitted thro' the Receiver that includes it, by means of the surrounding *Vacuum*, yet the Receiver is certainly struck with it; but finding no conveyance that way, reverberates and makes its Passage where it find least resistance. Nor did I observe, that altho' the Sound had but one passage from its Receiver, and that but a small one, that it continu'd any longer from the Stroke, than if it had been made in the open Air.

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